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PAPER

IN

MANUFACTURES.

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A Bounty of FIFTEEN GUINEAS was this Seſſion voted to Mr. JOHN ANTIS, of Fulneck, near Leeds, for his further improvment of the COMMON SPINNING-WHEEL (ſee Volume XI. page 152, where a Plate of his former Wheel is given): and for the uſe and information of the Public, a complete Wheel, according to the laſt improvment, is reſerved in the Society's Repoſitory.

The following is an Abſtract of a Letter from Mr. Antis, on this ſubject, dated Fulneck, May 25, 1795.

SIR,

I WILL now, according to your deſire, explain myſelf, as well as I can, upon the ſubject of my laſt improvement of the common Spinning-wheel. After having made my former improvement of a ſliding bobbin, I completed a Wheel on that principle: this gave me an opportunity to obſerve, how the firſt invention, and in ſhort, how the whole Wheel, acted; and induced me to make the following obſervations on thoſe parts, which I thought would admit of ſtill further improvement.

1ſt. Beſides the diſagreeable catch which the pinion with one leaf gave at every revolution of the Wheel, the bobbin moved only by ſudden jerks, and did not lay the thread on it ſo even as might be wiſhed: to remedy this, I adopted the motion of an endleſs ſcrew, working a toothed wheel with a heart-ſhaped piece of braſs fixed thereon.

2dly. As the ſpinner muſt be always perfectly at liberty to hold the thread at pleaſure, and not to let it in until it is ſufficiently twiſted, I obſerved, that as the bobbin moved upon a ſquare, the holding of the thread ſo affected it, that parti-

particularly when the bobbin began to be filled, and conſequently the purchaſe further from the centre, it became quite ſtiff upon the ſquare, and incapable of moving, notwithſtanding the action of the weight; and afterwards, when the thread was left at liberty, it would jump at once half an inch or more: and this would invariably have been the caſe with every other contrivance of the kind which might be ſubſtituted; as for inſtance, a cylinder with a rib, &c. &c. except the weight had been much heavier, which would have occaſioned a greater friction on the machine.

3dly. Beſides what has been obſerved above, it is well known, that in all wheels upon the old plan, as well as in thoſe with my firſt improvement, there was no other way to increaſe the friction of the bobbin, and make it take in more or leſs in proportion to the quantity of thread thereon, than by ſtretching or tightening the double cord; and this could never be done but at the expence of making the wheel go heavier and heavier, ſo that it became quite troubleſome when the bobbin was nearly filled. The ſame effect followed in ſome wheels that I have ſeen, which were made with a ſingle cord, having another added, to occaſion a preſſure on the neck of the bobbin, whereby the friction was increaſed or diminiſhed; becauſe the ſame degree of preſſure it made upon the bobbin, was alſo made upon the ſpindle, or upon a ſtud on which the bobbin turned, as in the ladies common ſpinning-wheels. As this latter method could not be uſed with a ſliding bobbin, I was under the neceſſity of contriving a new mode, by which the one was made quite independent of the other, ſo that the bobbin might move too and fro with the greateſt freedom, and there might be a means of increaſing the friction without any effect on the velocity of the whole machine. After various trials, I hit upon the

the preſent plan, viz. to make uſe of a ſingle cord, which has only to turn the flyer, therefore needs no ſcrew to tighten it; for, ſhould it, even in time, become ſo ſlack as not to do its duty, it may eaſily be tied or ſtitched a little ſhorter.

In order to regulate the friction on the bobbin, there is a neck of braſs or ſteel faſtened to one end of it, of which a vice or pincher fixed to the ſliding-bar takes hold: this vice muſt be made either of two elaſtic ſprings with wooden tops, or of wood wholly, and boſhed with leather; but if of wood only, then a ſpring muſt be made under the ſhoulder of the ſcrew to anſwer the ſame purpoſe. By tightening this ſcrew more or leſs, the friction may be regulated to the greateſt nicety, provided the ſprings are of a ſtrength rightly proportioned to their functions. It will readily appear that all this may be done without the leaſt effect on the velocity of the whole machine, as thereby nothing is added to the

the general friction ſo as to obſtruct it; ſuch a wheel will therefore be found to run much more freely than one with a double cord; and this muſt be conſidered a great advantage to a ſpinner who is obliged to ſpin the whole day for her living.

Theſe are the chief advantages aimed at by the preſent invention; and all who have ſeen and tried it here, think it as great an improvement on my former Wheel, as that was upon the common Spinning-wheel.